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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,620	01/29/2004	Sunil Kesavan	2448-000014	5660
27572	7590	09/20/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			NGUYEN, THUKHANH T	
P.O. BOX 828			ART UNIT	
BLOOMFIELD HILLS, MI 48303			PAPER NUMBER.	

1722

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/767,620

Applicant(s)

KESAVAN ET AL.

Examiner

Thu Khanh T. Nguyen

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 32-53 is/are pending in the application.
- 4a) Of the above claim(s) 32-53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4/12/06 & 1/29/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group 1, claims 1-9 in the reply filed on 06/26/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claim 32-53 are withdrawn because they are method claims which are under restriction for the same reasons as set forth in the previous communication and because the Applicants have chosen to elected the apparatus claims in the reply filed June 26, 2006.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Art Unit: 1722

3. Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Saia et al (5,874,037).

Saia et al teach an apparatus for molding composite material, comprising an upper mold part (52) and a lower mold part (50), wherein the mold parts further include a porous membrane (100) for venting gases that are given off by the reaction material inside the mold cavity (col. 9, lines 21-27).

In regard to claim 9, Saia et al disclose that the molding material is urethane elastomer (col. 2, lines 25-29), which is a urea material as described in the current specification (paragraph [0002]).

4. Claims 1 and 6-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Akita et al (6,770,227).

Akita et al teach a molding apparatus for molding composite or carbon material, comprising a first male mold member (Fig. 10, male mold) and a second female mold member (Fig. 10, female mold), wherein each of the mold member has a vent hole communicates with porous members (Fig. 10, vent hole & porous members) for venting gas generated in the reaction cavity during the molding process (col. 23, lines 28-33).

In regard to claims 6-8, Akita et al further teach a heater attached to each mold (Fig. 10) for heating the material to different temperature between 200-400 and at the pressure of between 100 kgf/cm<sup>2</sup> to 300 kgf/cm<sup>2</sup> (col. 22, lines 11-24).

In regard to claim 9, Akita et al disclose that the apparatus is capable of molding composite material including different phenolic resin and reinforcement material (col. 2, line 59 to col. 3, line12).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akita et al. ('227) as applied to claims and 6-9 above, and further in view of Chen et al (5,928,588).

Akita et al discloses a molding apparatus including a porous gas-permeable membrane as described above, but fails to disclose a specific dimension for the membrane's porosity and pore size.

Chen discloses a porous filter for used in manufacturing composites material for separated unwanted fluid from the molding cavity, in which the porous filter is made of micro-fibers having diameter less than 100 microns (col. 6, lines 2-4) and binder powder having particle sizes of 10 to 40 microns (col. 6, lines 37-38), wherein the porosity of the porous filter can be varied from coarse to fine or from fine to coarse (col. 13, line 65 to col. 14, line 1) depending on the intended use of the filter and the material being used to form the porous filter in order to provide good green strength and low pressure drop during the filtration (col. 2, lines 47-54).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Akita et al by providing a porous membrane having a porosity varying from fine to coarse as taught by Chen because the porous filter with these porosities would provide good strength and keep low pressure drop during the filtration.

In regard to claims 4-5, Chen further discloses that the porous filter comprises alumina or mixtures of alumina with other resin to provide additional properties and features or to reduce the cost of the product (col. 6, line 59 to col. 7, line 1).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Akita et al by providing the porous membrane made of alumina and its mixtures as taught by Chen in order to improve the porous membrane properties and to reduce cost to the membrane.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following porosity conversion table has been used in determine the porosity of the membrane: (Source: <http://www.dlis.dla.mil/figdata/A2420/chart5.htm>)

#### **POROSITY CONVERSION**


EXTRA COARSE	160.0 MICRONS
COARSE	40.0 MICRONS
MEDIUM	14.0 MICRONS
FINE	5.0 MICRONS
ULTRA FINE	1.2 MICRONS

Art Unit: 1722

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Khanh T. Nguyen whose telephone number is 571-272-1136. The examiner can normally be reached on Monday- Friday, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gupta Yogendra can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
TN  
9/18/06